National Spent Nuclear Fuel Program Meeting

November 8-9, 2005

Ronald Reagan Building and International Trade Center
1300 Pennsylvania Ave. NW; Washington, DC

Meeting Summary

Written and Compiled by
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Idaho National Laboratory

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Tuesday, November 8

8:30	Introductions	Mark Arenaz (NSNFP)
8:40	Welcome and EM SNF/HLW, DOE HQ Perspective	Dick Blaney (EM)
8:50	Repository Program Update	Joe Price (RW)
	• Status of License Application	
	• Surface Facility Design	
9:20	National Spent Nuclear Fuel Program Direction	Phil Wheatley (NSNFP)
	• FY 2006 Work Activities	
10:10	Break	
10:30	September 13-14 EM Meeting Overview	Mark Arenaz (NSNFP)
11:00	Integrated Acceptance Schedule	Bill Hurt (NSNFP)
	• IAS Development	
	• ID/SRS Fuel Swaps	
	• Sodium Bonded Fuel	
11:45	Lunch	
1:15	Site SNF Progress/Activities	
	1:15 Hanford	Sen Moy (DOE-RL)
	1:30 SRS	Randy Ponik (DOE-SR)
	1:45 INL	Ron Ramsey (DOE-Idaho)
2:10	Site HLW Progress/Activities	
	2:10 Hanford	Jim Linhart (NSNFP)
	2:20 SRS	Jim Linhart (NSNFP)
	2:30 INL	Jim Linhart (NSNFP)
2:45	Break	
3:10	SNF/HLW Cost Data	Dick Blaney (DOE-EM)
3:25	SNF/HLW Heat Generation Rate/Temp Limits	Jim Linhart (NSNFP)
4:00	Adjourn	

Wednesday, November 9

8:00	Opening Remarks	Mark Arenaz (NSNFP)
8:05	DOE SNF Transportation Approach	Tom Hill (NSNFP)
8:20	RW Transportation Status	Gary Lanthrum,
8:45	Quality Assurance, EM Perspective	Duli Agarwal (EM)
9:00	Quality Assurance	Ram Murthy (RW)
	• Planned QARD Revisions/WCQARS	
9:15	West Valley Lessons Learned	Jim Linhart, NSNFP
9:30	Break	
9:55	Canister Development Testing Update	Tom Hill, NSNFP
11:00	Emerging Issues for NSNFP	Mark Arenaz/P. Wheatley
11:30	Meeting Summary/Actions	Mark Arenaz
12:30	Adjourn	

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ACTIONS

#	Action Item	Actionee	Due Date
1	Provide a date on associated actions in the EIS. Provide a date on the expected certification of the LSN.	Joe Price	January 31, 2006
2	Provide the date for the completion of the MCO Transportability Study (5-year plan).	NSNFP	November 30, 2005
3	Provide the completion date and scheme for the SNF Database update.	NSNFP	November 30, 2005
4	Provide the status and cost estimates of NE's direction to DOE on the EMT process for all sodium-bonded SNF. Provide the status of the report to Congress on disposition path of the sodium-bonded SNF.	Dick Blaney (interface with Joe Boda)	December 15, 2005
5	Submit the draft NSNFP Meeting Summary to Phil Wheatley and Mark Arenaz.	Lori Braase	November 30, 2005 *Complete 11-28-05*
6	Finalize the NSNFP Meeting Summary and post it on the website. Also post the September 13-14 EM Meeting Overview.	NSNFP	December 15, 2005
7	Provide the status on the data needed to support the FEP Screening for DOE SNF analysis relative to criticality (Red Box Feedback)	NSNFP	December 15, 2005
8	Determine location and organize the next NSNFP Meeting.	NSNFP	TBD

MEETING SUMMARY
NOVEMBER 8, 2005

Introductions

Mark Arenaz

Mark opened the meeting and initiated introductions.

Welcome and EM SNF/HLW, DOE HQ Perspective

Dick Blaney

Dick Blaney welcomed the participants and discussed the renewed focus for EM provided by Jim Rispoli. There have been no formal announcements about reorganization within EM; however there will be a Deputy Assistant Secretary assigned for Acquisition Management.

Charlie Anderson's group will emphasize planning. We are tasked to better understand the programs in the field and to understand the costs of SNF operations, including HLW and TRU waste streams, as well as SNF handling.

We are developing overview statements for the 5-year plan, led by Frank Marcinowski. Congress wants to review the 5-year plan and the waste-type disposition maps. Florida International University has a software package for the waste-type disposition maps, largely based on the maps developed 5 years ago. The detail within each site may not be reflected in the maps, but the detail will be included at a lower DOE level. Overview statements and cost estimates will require the sites' support.

On September 13-14, 2005, a HQ SNF/HLW Integration Meeting was organized to develop decisions and actions to integrate SNF and HLW programs. The information from the meeting will be used as a guide for the future.

Repository Program Update (No presentation material)

Joe Price, RW

Background Information

The Yucca Mountain Project is operating on a continuing resolution until the FY-06 budget is approved. The September version of the License Application (LA) was completed by BSC and the document is now under configuration control for future changes. The LA is currently being revised and will factor in information from the new EPA standard, the outcome of the USGS investigation on water infiltration into the repository, and the new design direction toward using Transportation, Aging and Disposal (TAD) canisters for commercial SNF. The use of TAD canisters should solve the concern of having failed and hot commercial SNF oxidize in air and also increase the throughput within repository facilities and minimize facility contamination.

The TAD canister concept was looked at in the mid-1990s when the canisters were referred to as Multi-Purpose Canisters (MPCs) and DOE-RW HQ is now preparing a performance specification for the new TADs, which would have a welded top. They are also considering a bolted top even though the lid area would have to be thicker. BSC is to prepare a preliminary report within 30 days to evaluate the use of TADs and other changes that have been proposed by DOE-RW and a CD-1 within 90 days to provide additional details. The current design of the repository surface facilities could be modified and this information will also be put into the LA. For example, the Transportation Cask Receipt Facility may not be needed, as the casks would go directly to the various SNF and HLW handling facilities.

In the area of preclosure safety, the Project is now looking at the possible breach of a DOE SNF canister during a seismic event. It is assumed that the seismic event could cause the canister to swing off of the lifting hook or cause the repository transporter to jump the rails. The NSNFP and BSC are working together to evaluate this potential situation. The DOE SNF and HLW canister maximum thermal output is also being investigated and details will be provided during a later presentation.(Information provided by Jim Linhart)

Status of License Application

- We are trying to address the EPA standard. The USGS is working on infiltration.

- As a result of the decision to use a TAD canister for commercial SNF, changes in the YMP facility design are being considered.
    - There are issues with contamination due to handling fuel in air and fuel that is damaged.
    - The "old and cold" scenario will be considered until YMP can handle the damaged or hotter SNF.
    - Chris Kouts will be developing the TAD canister performance specification.

- BSC was to submit a draft LA to DOE, but the decision was made not to submit. Current version has been put under configuration control. Please let them know if there are any changes to DOE-SNF or Navy SNF.
    - In a letter, dated Oct 25, 2005, DOE directed BSC to look at new path forward to receive most of SNF in some type of standard canister to minimize handling of bare SNF assemblies. A Preliminary CD-1 package is due in 30 days and the revised package due in 90 days.
    - Design and operational changes will be incorporated in the LA prior to submittal to NRC.
- No date has been set for the LA submittal yet.
- Certification of the LSN is due six months prior to LA submittal. The system is continuing to be maintained and kept current.
    - There were 1.2 million documents in the system one year ago.
    - Last week, we had 3.4 million documents.
    - MOX and HLW glass are now being investigated to determine if we should include those documents.

- Now they are looking for the Multi-Purpose Canister (MPC) references to add to the system to prepare for the addition of the Transport Aging and Disposal (TADs) canister (replaces the MPC).
- Also, there is a potential that all associated emails will be included.

Surface Facility Design

- The facility baseline includes: Canister Handling Facility, Fuel Handing Facility (FHF) for a single fuel element, Dry Transfer Facility (DTF) for single fuel element, remediation capabilities, and a Transportation Cask Receipt/Return Facility (may be reconfigured based on the MPC decision).
    - Putting SNF fuel into canisters minimizes contamination and increases confidence with regards to public and worker safety.
    - Impacts to DOE SNF/HLW should be minimal.
    - Additional analysis currently underway with regards to the use of the TAD in Yucca Mountain.
    - Post closure seismic modeling.
    - Thermal issues.

  The YMP must submit their EIS to the NRC with the LA. An Environmental Report is being prepared which explains the differences and impacts between the current YMP EIS and the LA. Work on the Environmental Report is now somewhat on hold awaiting the final direction on the evaluation of the TADs and other issues. Even the Environmental Report method is being evaluated and could be changed. (Provided by Jim Linhart)

Action #1: Provide a date on associated actions in the EIS and on the expected certification of the LSN.

- Mark Williams is the new DOE-ORD Licensing Manager at YMP. His start date has not been determined. The QA Manager position is open. Paul Harrington is acting director for the Office of Project Management and Engineering. Other potential organization changes may occur.

National Spent Nuclear Fuel Program Direction*

Phil Wheatley, NSNFP

- MCO and standard canister drop tests were done, but they were not included in the Canister Survivability Report. This report will be updated to include the dates and analysis.

- We are planning to expand our database on how we qualify our codes.

- The INL has a dual welding program. These two programs are not together, but we get benefit with the synergism between them. The program includes real-time welding

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

inspection right after the welding takes place. Spot repair can be done. A phased array UT system is used to analyze the welds.

- DOE Standard Canister.
- Welding and inspection techniques for the Waste Package at Yucca Mountain.

- Work continues on the MCO transportability analysis. We have not found any show stoppers that would stop transportability.

Action #2: When will the MCO Transportability Study Activities be completed?

- Mike Tyack is the NSNFP transportation interface between RW and EM.

- Advanced Neutron Absorber Development. We are currently rolling the material. We want to eventually want to make the material in bulk, but we are in a scale-up effort now. C-4 is a highly corrosion resistant material. Gadolinium is immobile in post closure analysis. The C-4 absorber will be in the form of a basket. The C-4 will be welded with a nickel-chrome type wire.

- The NSNFP recommended using gadolinium phosphate because of the post closure EQ3/6 issue. We would have to use EQ3/6 analysis. This is a criticality, post closure issue, not a TSPA issue. Boron is good material for preclosure, but most of the Boron compounds don't stand up in water.

- The funding track for the ANA Project is projected for completion in late 2007. We should be able to order 3" plate from the vendor. We are confident we can make the material. We are just working through the fabrication steps. Fabrication and delivery should be compatible with SNF site's packaging plans.

- The thickness for the ANA basket plates is 3/8" and we have welded this material. The mechanical properties decrease with welding. We are working with ASME to look at the code to determine minimum properties. We want to be able to use conventional techniques. This is a division 1 NF component. There is a new section of the code to specifically address issues. Impact resistance or ductility is the key in the weld.

- Foster-Wheeler has a NRC License and their design uses above ground storage tubes. Foster-Wheeler needed to proceed for their license application when we were just staring the nickel-gadolinium alloy analysis. This material will be available for Foster Wheeler if they choose to use it. It may not be needed for the license they have with NRC. The DOE standard canister is criticality safe without poison. Poison is only needed for repository post closure.

- However, some fuels are borderline with respect to transportation. We may have to verify the location of the poison after several years of interim storage.

- The DOE-SNF database has been maintained. One reason we have a SNF database is for licensing support. It was 'frozen' about 18-20 months ago to verify traceability and

documentation for the YMP LA. The information is consistent with the YMP LA. We are also tracking moves and changes with the DOE SNF to eventually update the database. It does not impact the YMP LA as long as we have the 'frozen' database. SNF material coming off the books with SRS reprocessing is okay. The database should be consistent with the DOE site's SNF information. At Hanford, some discrepancies have been found with references in the database. The database agrees specifically with SRS source material. We may have some differences in planning and assumptions with the FRR receipts regarding what will be sent and when it will arrive.

- The DOE SNF database projects inventory to 2035. It will be updated at some point and will then be different from the YMP LA. It is not a problem to update, because we have the envelope (frozen database). It should not be increasing, since source terms should be decreasing due to better calculations as we move this fuel around.

Action #3: Review the 5-year Life Cycle plan to provide a schedule and the scheme to update the DOE SNF database.

September 13-14 EM Meeting Overview*

Mark Arenaz, NSNFP

Background Information

Mark provided a summary of the meeting that was held between DOE-EM HQ and EM site managers on September 13th and 14th to discuss issues facing EM in the areas of storage, packaging, transportation and disposal of DOE SNF and HLW. The goal of the meeting was to reach decisions on issues where possible and to issue action items on those that needed additional consideration. It was felt that the meeting was a success and that it should be held again in about six months.

The Integrated Acceptance Schedule for the shipment of DOE SNF (including naval SNF) and HLW to the repository will be updated by March 2006 based on agreed assumptions and methodology with DOE-RW. DOE SNF disposal paths were also discussed with the actions to cancel the SRS melt and dilute ROD, evaluate the SNF swap between SRS and the INL, and evaluate SRS SNF disposition using a combination of the H-Canyon process and direct disposal in the repository. The need and timing of SNF packaging and shipping capabilities at the various EM sites were also discussed and it was said that the Idaho Dry Storage Project (Foster-Wheeler facility) is being reviewed. A new cost estimate for the vitrification of INL calcine is being prepared along with an evaluation to canisterized the calcine (non-vitrification).

The disposition of sodium bonded SNF was also discussed. INL EBR-1 and Hanford FFTF SNF are scheduled to be processed through the electro-met process but the path forward on Fermi-1 SNF is still being evaluated. The disposition of Hanford Cs and Sr capsules is also being evaluated. The disposition of contact handled or unirradiated material is also being evaluated and the EM sites were asked to provide a list of their orphan materials. West Valley reported

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

that they are working to disposition two or three 55-gallon drums of process cell debris and fines from the vitrification cell. (Provided by Jim Linhart from the Quarterly Meeting notes)

- The MOA was not signed by EM, Paul Golan, now with DOE-RW is reviewing the MOA. RW management will sign, EM is interested.
- There was a requirement for DOE to report to congress in March on how sodium-bonded SNF will be handled. This was in the House bill. It has gone to conference now and should be issued any day; however, they may not be working on this with the new fiscal year issues.

Action #4: Provide the status and cost estimates of NE's direction to DOE on the EMT process for all sodium-bonded SNF. Also, provide the status of the report to Congress on disposition path of the sodium-bonded SNF.

Issue: Under the NWPA, RW cannot enter into a contract to accept fuel not burned in this country. But RW does not enter into any contract under this act, so it does not apply. Under the YMP EIS, it states they will pick up 19.2 tons of FRR SNF. This was the original amount, but it may not include additional amounts.

Integrated Acceptance Schedule*

Bill Hurt, NSNFP

- We need to improve HQ knowledge of DOE site's activities. A tool has been developed to do some "what if" analysis to assist in decisions, such as when to build facilities and when to ship SNF to Yucca Mountain.

- Impacts.
    - EIS ROD was not implemented. The M&D process at SRS was cancelled.
    - SRS H-canyon is operating and there are opportunities to use it.
    - SNF swaps between SRS and INL are pending

- Need to agree on assumptions and methodologies to develop the IAS. Site input will be needed.

Issue: The completion of the RW Total Systems Control Model may impact the delivery of the IAS schedule by the end of March 2006. The assumptions will be delivered to DOE-HQ by March 2006.

- Comment: Don't let the complication of this model cause the delay in the delivery of this schedule.

- The RW model will tell EM when we are done. We will assume an opening date and then determine when the sites need to start packaging. We will look at increments and how they fit into the model. To consider the impacts with RW, we need to be integrated with their model

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

Issue: DOE integration of the plans for the ATR SNF at the INL. The INL has been directed to prepare a plan for ATR fuel management after 2010 and CWI is developing plan for pre-2010.

Issue: At some point you will have to run a TSM model. Until we know the specifics of the new design, RW will have to have the system and facilities defined enough to run the model. The CD-1 package should be complete in about 90 days. RW will need some time to analyze the acceptance schedule after CD-1.

- We will interface through federal counterparts to form the team to work on the IAS.

SNF/HLW Cost Data*

Dick Blaney

- Expecting comments from the sites on the letter sent by Ram Murthy. The sites should provide comments on the letter and the expected costs to respond to the request. We are not looking for the information in the request. This should be aligned to a PBS, which should also be identified by each site. Send to Ram Murthy ASAP.

- This is an EM initiative only. Costs are represented as the cost EM is incurring on its SNF/HLW activities.

- The ATR is out of the scope as long as the costs are being incurred by the other program.

- The cost elements have been developed specifically for this review. We have looked at the TRU program. We have looked at their WBS and they have broken it down to a lower level of detail. However; we are not looking for a low level structure. TRU is 5-6 years ahead of us and doing things were are not doing. Even though there are some parallels and comparisons, we have not adopted their structure because it is in finer detail than what we want.

- Senior DOE HQ management wants us to precoordinate requests prior to sending them for signature. They need to be fully vetted with field offices before they are signed.

SNF/HLW Heat Generation Rate/Temp Limits (Hard Copy Handout)

Jim Linhart, NSNFP

The WAPS Rev. 2 has a HLW canister thermal output limit of 1,500 watts, which is based on the SRS 10-foot HLW canister. The WASRD Rev. 4 has a HLW canister thermal output limit of 2,540 watts, which is based on the Hanford 15-foot HLW canister. The 2,540 value was determined not on canister content of the Hanford HLW but as a ratio of size and fill height to

* See the NSNFP Website for Presentation Materials (http://NSNFP.INEL.Gov/Program)

the 10-foot HLW canister. The YMP expressed a concern for the higher 2,540 watt value since five of these canisters in one waste package would give a total output of 12.7 kW, which exceeds their waste package limit of 11.8 kW. It was said that these thermal values also affect the facility designs such as the in-cell canister storage rack design and the design of the HVAC system. The DOE SNF canister limit as specified in the WASRD is 1,970 watts. The Yucca Mountain Project (DOE-ORD) has drafted a letter requesting that the NSNFP coordinate the re-evaluated of these values and it should soon be issued. There is an outstanding Condition Report (CR-4048) that needs to be closed by this action.

There is also a concern for the temperature limits that have been established for DOE SNF canisters. The MCO must be maintained below 132 C and the DOE standardized canisters must be below 148 C (when handled outside of a waste package or cask). These low values are also having an impact on such things as the design of the facilities HVAC systems. These values have been re-evaluated by the NSNFP and EM sites in the past but it was agreed that they should be looked at again. It was noted that since the MCOs have already been loaded, their temperature limit might be difficult to change. (Provided by Jim Linhart)

- We have exceeded the YMP Waste Package (WP) limit of 11.8 kW with 5 canisters of SRS HLW (> 12 kW). The Navy limit is also 11.8 kW.

- We are trying to reevaluate these numbers. Even during the salt production years, the limit was only 1000 W. The SRS CSB is designed for 1000 W canisters. (This is not official.)

- Hanford's limit is 600 W (informal number). This does not include the cesium and strontium.

- The limit for an INL Calcine canister is 42 W.

- John Arthur, YMP, will issue a letter to reevaluate the thermal loading in the canisters for HLW and SNF. The letter will be sent to Mark Arenaz. Most of the data is in the LA.

- We want to make sure everyone is under the Waste Acceptance Product Specifications (WAPS) value of 1500 W. (Section 3.8, Heat Generation Specification, states: "The heat generation rate for each canistered waste form shall not exceed 1500 watts per canister at the year of shipment.")

- The SNF and HLW limits are for the handling facility and canister. It has a double limit, but the MCO does not.

- The temperature limit for SNF is 132 degrees C in the MCO and 148 degrees C in the DOE standard canister. The HLW temperature is around 400 degrees C. YMP is not concerned about temperature for the LA.

SITE SNF PROGRESS/ACTIVITIES

Hanford*

Sen Moy (DOE-RL)

- The FFTF site is working with MFC at INL for the transfer of sodium bonded ANF to INL for processing.

- With the approval of the Certificate of Compliance for the T3 cask, Hanford would be able to complete 8 shipments of fuel, which is within the Idaho Settlement Agreement limits. The settlement agreement includes consideration of the EIS and the two RODs.

- The shipment needs to be completed by first quarter of 2007 to not impacting FFTF or Idaho operations. The biggest impact is the turnaround time in Idaho.

- Two cubic meters of HLW will be packaged in 1900 canisters.

- Hanford has a commitment to develop a disposal strategy for cesium and strontium. Discussions with the regulator may not occur until 2008.

Savanna River Site*

Randy Ponik (DOE-SR)

- SRS projected it will run out of storage space in 2010. To resolve this issue, reprocessing will restart in H-Canyon. The first fuel will be HFIR. H-Canyon can run though 2019, but it will require funding to keep it maintained and operational.

- Material Test Reactor Equivalent (MTRE) is 3" x 3" x 3' storage capacity

- Continued H-Canyon operations through is still a possibility. If it continues, there may not be a need for a dry storage facility as long as we can ship our stainless steel to INL. INL has until 2019 to get their aluminum fuel to SRS.

- It will take about 7-8 years to process the aluminum fuel at SRS (2014). This does not include the INL's aluminum fuel.

Idaho National Laboratory*

Ron Ramsey

- DOE-ID will be investigating alternatives to complete the activities under the Foster Wheeler contract.

- ATR SNF is not considered EM-managed fuel, but it is not clear what happens after 2010, such as who will own CPP-666.

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

SITE HLW PROGRESS/ACTIVITIES

Idaho National Lab

Jim Linhart

The INL continues to work on the disposition of calcine to the repository. The calcine is small detergent sized particles currently stored in stainless steel bins within concrete vaults. The Yucca Mountain Project EIS evaluated the case of vitrification of the calcine. This case had the INL first process the calcine to segregate the waste so only the worst radionuclides would need to be vitrified. This case produced only 1,190 canisters of HLW. The segregation process was later cancelled so it was decided to send the calcine directly to the repository in canisters without vitrification, which would take about 4,100 canisters of HLW. There are RCRA issues concerning the calcine and the INL is planning to take their case to the EPA for a ruling that would allow the calcine to be shipped without vitrification. Since the RCRA issue is unresolved, it was decided to evaluate additional paths forward for the calcine and vitrification of the calcine is now being consider, along with other possible treatments. Vitrification of the calcine would increase the HLW canister count to about 12,000. (Provided by Jim Linhart)

- Calcine is the product of the HLW process. There is a lot of material in the waste, including D&D solvents from converting the nitrate product to an oxide. There are also a lot of metals and other chemicals. The material is hot. There are two listed RCRA materials in the calcine. The petition to delist the calcine is not a strong possibility. That is why they are looking for a dual path for calcine treatment. The management of Sodium Bearing Waste (SBW) also has a dual path. There is a residual liquid in the tanks from 50 years of process salt water, with contaminates. The State of Idaho says the SBW is HLW as well. We are testing to see if we can manage it as TRU material so it can be sent to WIPP.

- The DOE standard canister has a 30' drop in all configurations compared to a Yucca Mountain canister, which has a shorter drop distance in vertical configuration and only a 2' drop in other configurations.

- The High Integrity Canister (HIC) was never robust from a transportation standpoint. Its purpose was for containment.

- The solubility of the calcine is a contamination issue.

- The robustness of the DOE standard canister is for preclosure. There is no credit taken for the standard canister for post closure.

- No credit for canister life, which is about two hundred years. There will be penetrations from generalized corrosion.

Hanford

Jim Linhart, NSNFP

The construction of the Waste Treatment Plant (WTP) is somewhat on hold as the seismic design of two of the facilities is being re-evaluated. Hanford is working to re-baseline their activities factoring in the delays in the WTP. No information has yet been provided as to the extent of the WTP delays and the potential cost. Thin-wall and thick-wall nominal 15-foot (4.5 meter) HLW canisters were drop tested and neither canister was breached. These canisters continue to be evaluated and no decision has been made as to which one would be used. The thin-wall canister has a slightly greater inside volume but the thick-wall canister is more robust. (Provided by Jim Linhart)

- Hanford completed a preliminary design for a canister storage and shipping facility, which includes the MCOs.

- Two HLW canisters were tested (thin walled and thick walled). Thin walled canisters hold more volume and would reduce total canister count. Both canister types were dropped and neither breached, but the thin walled experienced more buckling.

The HLW equivalency of .5 holds true for the 15' as well as the 10' canisters.

Savannah River Site (SRS)

Jim Linhart, NSNFP

The SRS vitrification process is operating well and they have now poured about 2000 canisters of HLW. The construction of the 2nd Glass Waste Storage Building is eight to nine months ahead of the need date and construction will be completed in November 2005. Following such things as an Operational Readiness Review, the facility could be ready for operations during the first part of next year. (Provided by Jim Linhart)

- Even though the 2000 canisters of vitrified glass increased the percentage loading, some surging occurred. They are now at 35% and are experiencing some success.

- The first HLW Canister Storage Building (CSB) is now being used.

- The second HLW CSB is under construction and should be ready for use in the spring 2006; 6-9 months ahead of the need date.

- YMP is considering the need for an aging facility. They looked at the SRS CSB and at the vaults at Hanford. They are now doing some benchmarking to look at designs and functions.

MEETING SUMMARY
NOVEMBER 9, 2005

DOE SNF Transportation Approach*

Tom Hill, NSNFP

A meeting was recently held in Washington DC to discuss the PacTec report with DOE-RW Transportation. The report evaluated the DOE SNF transportation approach. PacTec likes the use of well-defined and tested canisters and the way the DOE SNF had been grouped into types. They felt that the NSNFP needed to meet with the NRC as soon as possible on this concept and focus on one fuel type. Other fuel types could be brought to the NRC as amendments to their approval of the first fuel.

The NSNFP needs to address their canisters in transportation accidents and needs to provide more support for the moderator exclusion case. Details on canister baskets configurations are needed for each SNF group and these need to be evaluated for shipping. They also need to evaluate criticality during transportation. The NSNFP needs to work with the NRC on the use of Ni-Gd as basket material.

A topical report is being prepared by the NSNFP to address all DOE SNF canister issues. The report will be presented to DOE-RW for review and it is hoped that both the NSNFP and DOE-RW could meet with the NRC some time in January 2006. There is also a plan to meet with cask vendors at a later date to review the methodology of shipping DOE SNF. (Provided by Jim Linhart)

- Grouping of fuels needs to include the basket type and details.

- We are pursuing one cask with one basket and one fuel type. Then it should be easier to amend the certificate to add new baskets and fuel types. It may be just one cask with different basket configurations for each fuel type.

- PacTec was concerned with how we specify representative fuels. They want us to better define our bounding parameters for the fuel types.

- We are expecting to initiate dialog with the NRC. They are willing to talk, but they can't give verbal approvals in the meeting.

- The MCOs are all packaged. The designer is comfortable with the MCO's transportability. As long as we have moderator exclusion, then we should have no issue with geometry.

RW Transportation System*

Gary Lanthrum, DOE-RW

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

- There is some discussion occurring with respect to recycling of SNF and how that will impact repository operations. (Recycling, not reprocessing.)

- The use of dedicated trains avoids the delays at the classification yards. It also reduces the security force. This was primarily an operational decision. We still have to go through the switching yards, but we don't have to spend the time to break up the train, although we may have to switch crews.

Q: Will larger rail cars be used?
A: We may have a mixture of cars depending upon the cask size. Utilities may have a range of cask sizes depending upon their load out facility. We think we can qualify a large flat car and still meet the AR standards.

- The draft Nevada Rail EIS is expected in the spring 2006 with the final EIS to follow the year after.

- Funding for FY-2006 is less than FY-2005. It is uncertain how that will impact the transportation area.

- Canister approach for the utility's SNF will not change the transportation approach. Use of heavy haul for some of the casks requires a permit for every truck. This is cost prohibitive. We still plan on using rail cars for the casks.

- Paul Golan has asked for proposals for a revised CD-1 package. This should be ready for submittal by spring 2006.

- A formula based-approach is being used rather than a needs-based approach. This considers various parameters in each state to determine costs. This will provide better equity between the states. We are planning to implement this approach with a pilot program. Ned Larson will review this approach with the NRC to get their feedback.

- We are looking at canister contents for alignment opportunities to reduce the number casks needed.

- We are not expecting a large cost increase over premium rail cars to meet the AAR Performance Specification, S-2043 for trains carrying SNF and HLW.

- There is geologic software available that will help design the rail line through Nevada to Yucca Mountain.

- 4000 comments were received on the scoping study for the draft EIS.

- We are working with the states and about 40 tribes on emergency preparedness and other issues. Each tribe operates differently and some don't have organized ways to communicate

with us or within their own tribe. We have requested meetings with the tribes. It is easier to meet with state officials in their collective government meetings.

- Sandia is doing testing on sabotage scenarios using real fuel to see how it impacts the cask. We are expecting these tests to show less impacts than our conservative models indicate.

- The planning is based on ramping up to the 3000 MT per year.

- We are looking at being able to take burnup credit. We have some data from the French and are analyzing it. We are making investments upfront to be able to take higher burnup fuels.

Quality Assurance, EM Perspective*

Duli C. Agarwal, DOE-EM

- QA program includes SNF and HLW and is a joint effort between RW and EM.
  - Joint memorandum was signed in December 2003.

YMP Quality Assurance (No Presentation Materials)

Ram Murthy, DOE-RW

The QARD Rev. 17 was sent out for one last review as changes had been made to address the OCRWM reorganization. The issuance of the WCQARS is pending the issuance of the QARD. It was said that the YMP OQA is building up their Federal staff and reducing their contractor support. Future EM site audits could use more Federal QA employees. QARD Rev 17 has not been released. (Provided by Jim Linhart from information received at the Quarterly Meeting.)

- NRC has reviewed and accepted the QARD, but we don't want to release it until some clarification items have been incorporated. It will be out this week for review. It should not impact the program.

- We used to have one QARD; now, we have 4 QA programs:
  - DOE QA
  - NRC QA
  - Balance of Plant QA Program. Not covered by NRC.
  - Transportation QA Program. Cask vendors will be under the NRC purview. Cask vendors must have a NRC QA program.

- Now we are going to combine all the QA programs into a one under Revision 18 (Super QARD). Each program will extract the requirements and develop their plan for implementation.

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

- Sites have a good QA program that is effective. The changes to the WCQARS should not affect the sites. DOE will analyze it and determine impacts to the sites. (AQAR – Augmented Quality Assurance Requirements.)

West Valley Lessons Learned (Hard Copy Handout)

Jim Linhart, NSNFP

The NSNFP has been assisting West Valley (WV) to document the lessons learned from the WV D&D effort. The draft report has been written and is currently being reviewed by WV before it is issued. A summary of the highlights of this lessons learned is as follows. Even though there had been a program to remove failed parts from the vitrification cell, the effort had fallen behind so failed parts had to be removed from the cell by the D&D crew before the actual D&D effort could begin. The scope of the D&D effort was to take the vitrification facility to bare walls so that the building could be demolished which meant removing everything including conduit and equipment supports. In the end it was decided to leave the cell for possible use, so the in-cell crane and one robotic arm were repaired.

A Brokk mini-backhoe was modified to do most of the cutting and shears were attached that could cut up to 8-inch pipe and a large circular saw blade was also attached to cut even larger items. It was said that if the Brokk had been modified way in advance it would have been more effective as things like the circuit boards were not designed for radiation work and thus experienced some failures.

The vitrification cell had been equipped with a crane and wall mounted manipulators which had been sufficient for normal operations but two remotely operated arms (like a PAR) had to be installed to complete the D&D work as they could reach into more locations. The cell hatches were used to put equipment into the cell but it was decided that removing the large vessels via the cell door was a safer operation and thus it was done in that manner. The cell door threshold was removed to allow this equipment removal and this later lead to a spread of contamination as rodents were getting into the cell under the door, so the threshold was re-installed.

Large metal shield boxes were built to hold the vessels and the melter and they weighed up to 150 tons (6-inch wall thickness). Smaller metal 4x4x6 foot boxes (3-inch wall thickness) were used for cell equipment and these weighed 9 tons. The in-cell equipment, such as the crane, was already near its end of life and the shield box with vessel lifts were near crane capacity, which lead to a lot of equipment failures.

Water was used to spray the cell and nitric acid was used to decontaminate the inside of the mixing vessels. The contaminated liquid collection system needs to be sized for this effort and not just the routine operations while the process was being operated.

Two small fires occurred in the cell as sparks from the circular saw fell on wood cribbing splinters and a sling. The cell must be kept clean of combustibles including hoses and cables. An unplanned expose also occurred as employees were doing housework near a box that contained a radiation source that was unknown to them. The worker exposures were not above

limits but still were unplanned. The radiation levels need to be rechecked often in support of the D&D effort. Because of the two fires and the unplanned exposure, the D&D effort was stopped for several months while a review of all procedures and the entire D&D effort were reviewed and corrective actions were taken.

Although the D&D effort started off with a trained and knowledgeable staff, it took 2 ½ years to complete and as time went on more and more people left the project or were downsized. This left the D&D effort having to work with the remaining staff on a weekly basis, which made the completion of the work even more difficult. (Provided by Jim Linhart)

- The Lessons Learned Report is in final review at West Valley and should be finished soon.

- West Valley Hot Cell took 2.5 years to D&D, but some of that was due to months of downtime to reevaluate the process from unplanned events (fires and unplanned exposure). During this time, the crew began to find other jobs. They had to replan each week based on the crew that was left.

- The cell has been set aside for future potential use.

DOE SNF Canister Planned Activities*

Tom Hill, NSNFP

The NSNFP is working on the DOE standardized canister basket design and specification. They are also looking at the DOE standardized canister and MCO response during a transportation accident and are looking at the MCO first. The survivability evaluation of the MCO during a transportation accident has shown that the basket inside of the MCO can hit the head of the MCO and the use of a transportation collar or impact limiters within the cask are being considered. Transportation in Hi-Star 100 casks is being evaluated with four MCOs inside.

All DOE SNF canisters have been drop tested at ambient temperatures and they will now be tested via an Impact Testing Machine at higher and lower temperatures. The high temperature would be at the time when the canister is first removed from a cask and the low temperature would be during a winter transportation accident. Material testing of 304L and 316L stainless steel continue to be conducted and no cracks or tearing of this material have been seen to date.

The NSNFP is also performing shielding calculations for DOE SNF canisters. It was noted that the DOE standardized canister does not have a shield plug in the top but the Foster-Wheeler version of this canister does have a shield plug in the top. Thermal calculations on DOE SNF canisters during transportation are also being done.

All of the above canister work is to be completed in FY-06 if the funding allows and it was said that this work is confirmatory in nature and should not require any changes to the LA. (Provided by Jim Linhart)

* See NSNFP Website for Presentation Material (http://NSNFP.INEL.Gov/Program/)

- INL is leading the nation on dynamic testing. We have ability to do materials analysis in this area. The ITM or Impact Testing Machine was developed by the INL.

Issues/Actions

Mark Arenaz

- The issue was raised about the SNF characterization data needed for disposal in the Repository. We will be getting feedback relative to the criticality comment on the Red Box in the transportation approach plan. NSNFP will be having discussions with YMP.

Action #4: Provide the status on the data needed to support the FEP Screening for DOE SNF analysis relative to criticality (Red Box Feedback).

- Last year canister drop tests were witnessed by the NRC and RW. It helps to get them involved. They have some insight.

ACRONYMS

ACNW	Advisory Committee on Nuclear Waste
AMR	Analysis Modeling Report
AQAR	Augmented Quality Assurance Requirements
ATR	Advanced Test Reactor
BBWI	Bechtel BWXT Inc.
BSC	Bechtel SAIC Company
BWR	Boiling Water Reactor
CD	Conceptual Design
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHF	Canister Handling Facility (YMP)
CPT	Corporate Project Team
DOE	U.S. Department of Energy
DTF	Dry Transfer Facility (YMP)
DWPF	Defense Waste Processing Facility (SRS glassification facility)
EIS	Environmental Impact Statement
EM	DOE Office of Environmental Management
EMT	Electrometallurgical Treatment
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
FAST	Fluorinel Dissolution Process and Fuel Storage (INTEC)
FEP	Features, Events, and Processes
FFTF	Fast-Flux Test Facility (Hanford)
FHF	Fuel Handling Facility (YMP)
FRR	Foreign Research Reactor
FW	Foster Wheeler (Proposed packaging and storage facility at INL)
HFIR	High-Flux Isotope Reactor (ORNL)
HIC	High Integrity Canister (Proposed design for ‘cats & dogs’ SNF)
HLW	High Level Waste
HQ	DOE Headquarters
IAS	Integrated Acceptance Schedule
INL	Idaho National Laboratory (Was the INEEL)
INTEC	Idaho Nuclear Technology and Engineering Center
ITM	Impact Testing Machine (INL developed)
ITS	Important to Safety
ITWI	Important to Waste Isolation

LA	License Application (YMP)
LCC	Life Cycle Cost
LSN	Licensing Support Network
M&D	Melt & Dilute
MCO	Multipurpose Canister Overpack (Hanford)
MFC	Materials & Fuels Complex (Formerly ANL-W)
MHLW	Mixed High Level Waste
MOA	Memorandum of Agreement
MPC	Multi-Purpose Canister (SNF canister concept during mid-1990's)
MTHM	Metric Tons of Heavy Metal
MTRE	Material Test Reactor Equivalent
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NFS	Nuclear Fuel Services, Inc.
NNSA	National Nuclear Security Administration
NNPP	Naval Nuclear Propulsion Program
NRC	Nuclear Regulatory Commission
NSNFP	National Spent Nuclear Fuel Program
NWPA	Nuclear Waste Policy Act
OCRWM	Office of Civilian Radioactive Waste (RW) Management
OGC	Office of General Council (DOE)
ORD	Office of Repository Development (DOE)
PCT	Pressure Change Test
POC	Point of Contact
QARD	Quality Assurance Requirements Document
RCRA	Resource Conservation and Recovery Act
RERTR	Reduced Enrichment Research and Test Reactor
RH TRU	Remote-Handled Transuranic (waste)
RIT	Regulatory Integration Teams
ROD	Record of Decision
RW	See OCRWM
RWMC	Radioactive Waste Management Complex
SAR	Safety Analysis Report
SBW	Sodium Bearing Waste
SHADO	Small High Activity Debris Object
SNF	Spent Nuclear Fuel
SRS	Savannah River Site
SSCs	Systems, Structures, and Components

TAD	Transportation, Aging, and Disposal (Canister for commercial use)
TQAP	Transportation Quality Assurance Plan
TRU	Transuranic Waste
TSPA	Total System Performance Assessment
USGS	United States Geological Service
UT	Ultrasonic
WAC	Waste Acceptance Criteria
WAPS	Waste Acceptance Product Specification
WASRD	Waste Acceptance Systems Requirements Document
WBS	Work Breakdown Structure
WCQARS	Waste Custodian Quality Assurance Requirements Specification
WIPP	Waste Isolation Pilot Plant
WP	Waste Package (YMP)
WTP	Waste Treatment Plant (Proposed facility at Hanford)
YMP	Yucca Mountain Project